

IN THE CLAIMS

Please amend Claims 1,6,7, and 8 to read as follows:

Subj

1. *(Currently Amended)*: A solenoid for providing linear actuation, comprising:

- a) first and second polepieces having axial bores coaxially disposed along a common axis;
- b) an electrical conductor wound around about said polepieces in a plurality of turns;
- c) an armature slidably disposed in said axial bores;
- d) a bearing axially disposed in one of said first and second polepieces; and
- e) a shaft attached coaxially to said armature and extending through a supportive bore in said bearing, said shaft being axially displaceable by electromagnetic displacement of said armature to provide said actuation.

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B

2. *(Original)*: A solenoid in accordance with Claim 1 wherein said armature is separated from said polepieces by a generally cylindrical air gap.

3. *(Original)*: A solenoid in accordance with Claim 1 wherein said armature is frusto-conical.

4. *(Original)*: A solenoid in accordance with Claim 1 wherein said solenoid is included in an actuator attachable to a device for providing linear actuation to said device.

5. *(Original)*: A solenoid in accordance with Claim 1 wherein the respective diameters of said bearing bore and said shaft are as nearly identical as is possible without engendering drag on said shaft.

6. *(Currently Amended)*: A valve assembly for exhaust gas recirculation between the exhaust manifold and the intake manifold of an internal combustion engine, said assembly including an exhaust gas recirculation valve and further including a solenoid actuator attached to said valve, said solenoid actuator having first and second polepieces having axial bores coaxially disposed along a common axis, an electrical conductor wound around about said polepieces in a plurality of turns, an armature slidably disposed in said axial bores, a bearing axially disposed in one of said first and second polepieces, and a shaft attached coaxially to said armature and extending through a supportive bore in said bearing, said shaft being axially displaceable by electromagnetic displacement of said armature to provide actuation of said valve.

10 7. *(Currently Amended)*: An internal combustion engine, comprising:

- a) an intake manifold;
- b) an exhaust manifold; and

c) a valve assembly for exhaust gas recirculation between said exhaust manifold, and said intake manifold, said assembly including an exhaust gas recirculation valve and further including a solenoid actuator attached to said valve and having first and second polepieces having axial bores coaxially disposed along a common axis, an electrical conductor wound around about said polepieces in a plurality of turns, an armature 5 slidably disposed in said axial bores, a bearing axially disposed in one of said first and second polepieces, and a shaft attached coaxially to said armature and extending through a supportive bore in said bearing, said shaft being axially displaceable by electromagnetic displacement of said armature to provide actuation of said valve to admit exhaust gas from said exhaust manifold into said intake manifold.

b

8. (*Currently Amended*): A solenoid for providing linear actuation, comprising:

- a) a housing;
- b) first and second polepieces, within said housing, having axial bores coaxially disposed along a common axis;
- 5 c) an electrical conductor wound around about said polepieces in a plurality of turns;
- d) an armature slidably disposed in said axial bores;
- e) a bearing axially disposed in one of said first and second polepieces; and
- f) a shaft attached coaxially to said armature and extending through a supportive 10 bore in said bearing, said shaft being axially displaceable by electromagnetic displacement of said armature to provide said actuation.

9. (*Previously Added*): A solenoid in accordance with Claim 8 wherein said armature is separated from said polepieces by a generally cylindrical air gap.

10. (*Previously Added*): A solenoid in accordance with Claim 8 wherein said armature is frusto-conical.

11. (*Previously Added*): A solenoid in accordance with Claim 8 wherein said solenoid is included in an actuator attachable to a device for providing linear actuation to said device.

12. (*Previously Added*): A solenoid in accordance with Claim 8 wherein the respective diameters of said bearing bore and said shaft are as nearly identical as is possible without engendering drag on said shaft.